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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
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10/582,627

05/31/2007

Hiroshi Yokota

8051-1037

2782

466

7590

03/10/2009

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EXAMINER

GROUP, KARL E

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

03/10/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

|                              |                                      |                                      |  |
|------------------------------|--------------------------------------|--------------------------------------|--|
| <b>Office Action Summary</b> | <b>Application No.</b><br>10/582,627 | <b>Applicant(s)</b><br>YOKOTA ET AL. |  |
|                              | <b>Examiner</b><br>Karl E. Group     | <b>Art Unit</b><br>1793              |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 31 December 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 10-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6-12-06,3-6-08</u>  | 6) <input type="checkbox"/> Other: _____                          |

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***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7,10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rusinko et al (7,319,079\*) further in view of Roche et al (3,256,103).

Rusinko et al teach a refractory composition for evaporating metals including titanium diboride, boron nitride, aluminum nitride (examples 11,16) and CaO with examples 11,16 and 18 exemplifying .1 wt% CaO.

Rusinko teach .2-5 wt% of compounds such as Ti may be added (column 3, lines 39-43) and the oxygen content may be present in an amount up to 3.8wt% (column 3, line 65).

Rusinko et al fail to exemplify TiN.

Roche et al teach a refractory composition for crucibles and boats not unlike the instant invention and Rusinko et al, including boron nitride, titanium diboride and titanium nitride where titanium nitride may be added to improve the high temperature properties.

It would have been obvious to one of ordinary skill in the art at the time of the invention to further include titanium nitride in the refractory of Rusinko et al because Roche et al teach titanium nitride improves the high temperature properties of boron nitride, titanium diboride refractories used in evaporation boats.

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3. Claims 1-7,10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jungling (6,466,738) alone or further in view of Roche et al (3,256,103).

Jungling teaches refractory compositions for evaporators including 45-55 wt%  $TiB_2$ , 40.5-54.7 BN, .1-1.5 wt% CaO and oxides, carbides and nitrides selected from Al, Si, Zr and Ti (column 2, lines 27-50). Example 1 further includes AlN.

With respect to TiN, although Jungling fails to exemplify TiN, The subject matter as a whole would have been obvious to one of ordinary skill in the art at the time the invention was made to select TiN from the list of compounds taught by Jungling because they are all taught as operational.

In the alternative, it would have been obvious to one of ordinary skill in the art at the time of the invention to further include titanium nitride in the refractory of Jungling because Roche et al teach titanium nitride improves the high temperature properties of boron nitride and titanium diboride refractories used in evaporation boats.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl E. Group whose telephone number is 571-272-1368. The examiner can normally be reached on M-F (6:30-4:00) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Karl E Group/  
Primary Examiner  
Art Unit 1793

Keg  
3-9-09